PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference P05180100	**FOR FURTHER ACTION**	See item 4 below
International application No. PCT/JP2005/003424	International filing date *(day/month/year)* 23 February 2005 (23.02.2005)	Priority date *(day/month/year)* 24 February 2004 (24.02.2004)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant Japan Oil, Gas and Metals National Corporation		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

   In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☒	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☒	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

	Date of issuance of this report 19 September 2006 (19.09.2006)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	Authorized officer Yoshiko Kuwahara e-mail: pt07@wipo.int

Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

TRANSLATION

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

	Date of mailing *(day/month/year)*
Applicant's or agent's file reference P05180100	FOR FURTHER ACTION See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/JP2005/003424	23.02.2005	24.02.2004

International Patent Classification (IPC) or both national classification and IPC

Applicant
Japan Oil, Gas and Metals National Corporation

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP	Authorized officer
Facsimile No.	Telephone No.

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

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Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ in written format

☐ in computer readable form

c. time of filing/furnishing

☐ contained in the international application as filed.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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Box No. IV Lack of unity of invention

1. ☐ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has:

   ☒ paid additional fees

   ☐ paid additional fees under protest

   ☐ not paid additional fees

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

   ☐ complied with

   ☒ not complied with for the following reasons:

Claim 1 describes two catalysts as catalysts for producing hydrocarbons having a carrier containing a manganese oxide and an aluminum oxide and, carried thereon, a ruthenium compound 1) a catalyst treated with an aqueous alkaline solution and thereafter fired in air, and/or (2) a catalyst produced by using an aluminum oxide having a specific pore distribution.
And, these two catalysts have a common matter of "a catalyst for producing hydrocarbons having a carrier containing a manganese oxide and an aluminum oxide and, carried thereon, a ruthenium compound," but after making an investigation, the matter is disclosed in the document JP, 2003-003174, A (JAPAN NATIONAL OIL CORPORATION and one other), 8 January, 2003 (08.01.03), claim 1, and is obviously not novel.
As a result, the common matter is no more than the prior art, and in the sense of PCT Rule 13.2, second sentence, it is not a special technical feature.
Since there is no other common matter to be recognized as a special technical feature in the sense of PCT Rule 13.2, second sentence, it is not possible to find any technical relationship between the two catalysts in accordance with PCT Rule 13.2.
Therefore, it is clear that the invention related to claim 1does not meet the requirement of unity of invention.

4. Consequently, this opinion has been established in respect of the following parts of the international application:

   ☒ all parts

   ☐ the parts relating to claims Nos. _____

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-14	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-14	NO
Industrial applicability (IA)	Claims	1-14	YES
	Claims		NO

2. Citations and explanations:

Document 1: JP, 2003-003174, A (JAPAN NATIONAL OIL CORPORATION and one other), 8 January, 2003 (08.01.03)

Document 2: JP, 2003-512925, A (Exxon Mobil Research and Engineering Company), 8 April, 2003 (08.04.03)

Document 3: L. FAN et al., Supercritical Phase Fischer-Tropsch Synthesis: Catalyst Pore-Size Effect, AIChE Journal, 1992, Vol. 38, No. 10, pp. 1639-1648

Document 4: JP, 2003-024786, A (NIPPON OIL CORPORATION), 28 January, 2003 (28.01.03)

Inventions described in claims 1-14 do not appear to be inventive on account of the documents 1 and 2 cited in the ISR.

Claims 1-6 (with respect to claim 1 (1))
Document 1 describes a catalyst for FT reaction having an alumina-manganese oxide carrier carrying sodium and ruthenium. The ratio of each component overlaps with the provisions of claims 2, 4 and 5 of the present application (see the document 1: claims 1 and 2 and paragraph [0001]).
On the other hand, document 2 describes, in a method for producing a catalyst for FT reaction having a composite carrier of alumina and a VIIB metal oxide carrying a precious metal, a process containing carrying and baking the precious metal, and thereafter treating the catalyst by ammonium hydroxide and the like and firing in air. As a condition for firing in air, firing in air at 450 °C is cited. Document 2 further describes that using the catalyst obtained by the production method, the generation of gas is low, and a high-quality wax is obtained (see the document 2: claims 1 and 12, paragraphs [0001], [0004] and [0005] and embodiments).
Accordingly, to reduce a gas generated by catalysis and obtain a high-quality wax, adopting, as a method for producing a catalyst for FT reaction described in the document 1, a process containing treating the catalyst after carrying ruthenium by ammonium hydroxide and the like and firing in air would have easily been conceived by a person skilled in the art.

Claim 7 (with respect to claim 1 (1))
Using the catalyst mentioned above in the FT reaction is a matter a person skilled in the art can manage accordingly.

Claims 8-14
Refer to the judgment on claims 1-7 mentioned above.

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Inventions described in claims 1-7 do not appear to be inventive on account of the documents 1, 3 and 4 cited in the ISR.

Claims 1-6 (with respect to claim 1 (2))
In a catalyst for FT reaction carrying ruthenium on sodium, controlling the pore diameter of the carrier alumina is publicly known (see documents 3 and 4). Accordingly, in an alumina-manganese oxide carrier as well, controlling the pore diameter of alumina to the extent described in documents 3 and 4 is a matter a person skilled in the art can easily conceive of. And, the effect by controlling the pore diameter is no more than an effect foreseeable from the documents.

Claim 7 (with respect to claim 1 (2))
Using above-mentioned catalyst in the FT reaction is a matter a person skilled in the art can manage accordingly.

WRITTEN OPINION OF THE
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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 1 mentions two catalyst features by selection, however, since these features are not similar, claim 1 involves two different inventions as a consequence. Describing two different inventions like these in one claim is inappropriate.